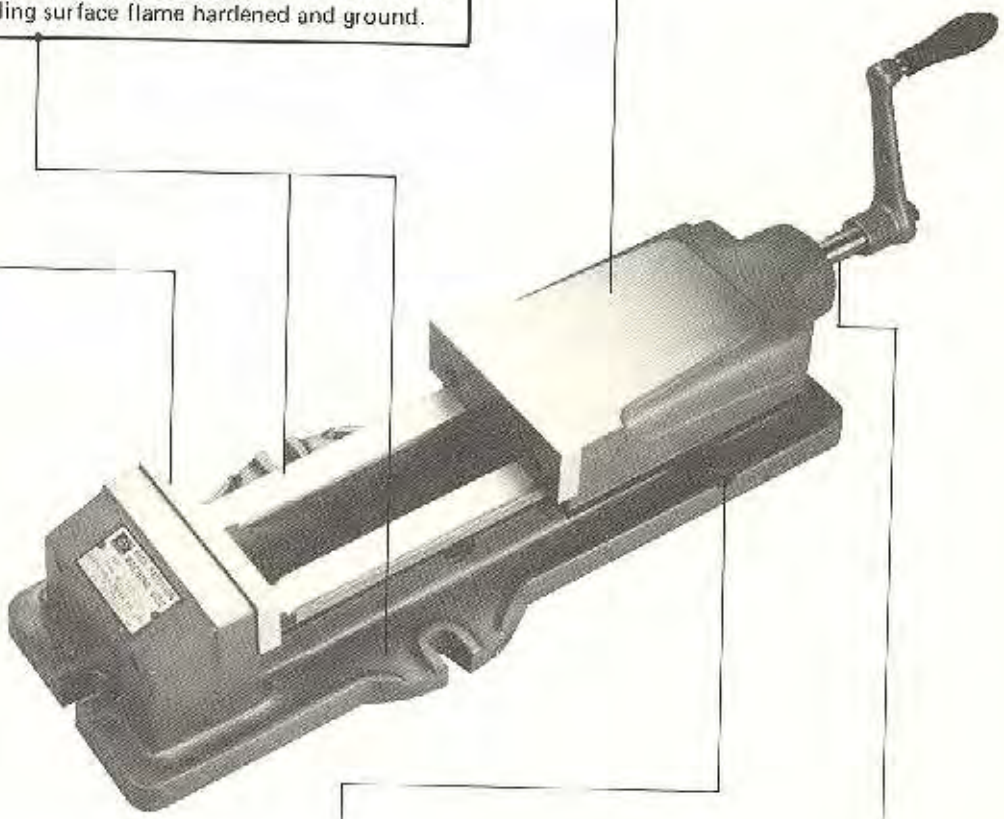
1. HYDRA VISE CONSTRUCTION AND OPERATION DETAILS.

Jaws are made of special steel, which is hardened and ground.

Hydra. Booster provides a steady clamping force against shocks and vibrations during the operations, since it fastens the work piece resiliently with an aid of the disc-springs mounted inside.

Body is made of high quality cast iron, which resists deflection or bending, and its sliding surface flame hardened and ground.



It makes possible 3-range jaw opening variation where maximum opening attained is 3 times as large as that of normal machine vises.

Clamping force may be freely adjusted with this base line as a guide. It magnifies a small force into an enormous clamping force by virtue of its unique Hydra. Booster incorporated.

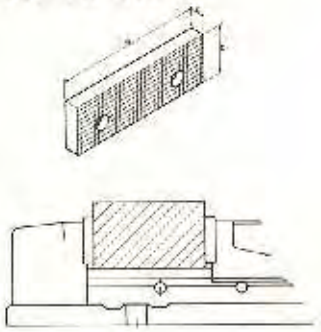
*With Hydra. Power Machine Vise, auxiliary equipment such as a hydraulic pump, hose and air compressor are no longer needed.

2. OPTIONAL ACCESSORIES FOR HYDRA. POWER VISE.

AUTO-WELL accessories permit faster, higher, accuracy and flexibility for clamping fixtures.

1. #Jaws, applicable for clamping rough workpiece. (HP-003T)
2. Work Stops, Permit repetive work in completely accurate position. (HP-00ST)
3. Hold Down Jaws, Are specially suitable for high precision processing and also applicable for clamping rough workpiece. (HP-003D)
4. The Swivel Base can be freely adjusted from 0-360 degrees with min. graduation at 1 degree.
5. Vee Jaws, Specially for round workpiece. (HP-003R)

#-Jaw (HP-003T)



NO.	a	b	c
HP-403T	100	36	11
HP-503T	125	46	15
HP-603T	150	54	17

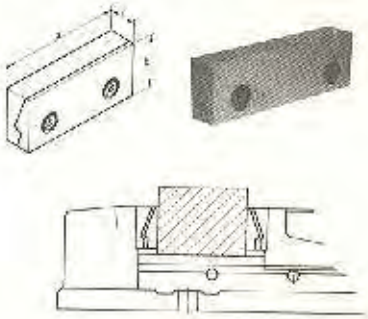
unit: mm

Work Stop (HP-00ST)

NO.	work stop
HP-40	HP-40ST
HP-50	HP-50ST
HP-60	HP-60ST

unit: mm

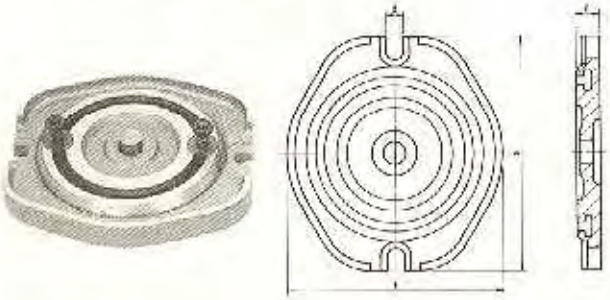
Hold Down Jaws (HP-003D)



NO.	a	b	c
HP-403D	100	36	22
HP-503D	125	46	25
HP-603D	150	54	25

unit: mm

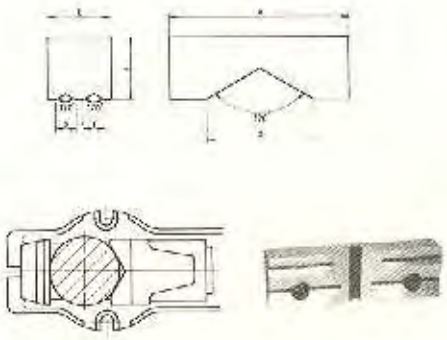
Swivel Base (HP-002)



NO.	a	b	c	weight
HP-402	240	222	25	6
HP-502	280	266	32	10
HP-602	330	310	35	15

unit: mm

Vee Jaws (HP-003R)



NO.	a	b	c	clamp range
HP-403R	100	36	32	6.4-50
HP-503R	125	46	32	6.4-70
HP-603R	150	54	32	6.4-90

unit: mm

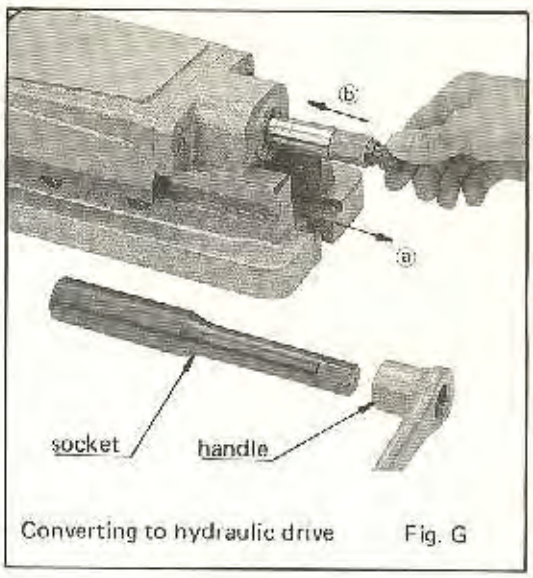
6. HOW TO USE.

(A) When this vise is used as a hydraulic vise.:

- First pull out the hydraulic-normal selector knob in the direction ⓐ as shown in (Fig. G) so that hydraulic drive may function automatically.

- Clamping of the work (Fig. H)
  1) Place work between the jaws, continue to turn the handle to fasten the work till it is no longer possible to turn it.
  2) Then apply a slight shock to the handle . . . knock it lightly by hand, for instance, this will automatically shift the power source to hydraulic mechanism. Continue cranking the handle as it is.
  3) Clamping force increases practically in proportion to the number of turns the handle has made after the power shifted to hydraulic drive, and accordingly you can accomplish fine adjustment of clamping force using the base lines ① ② ③ as a guide.

- Releasing . . . This vise may be released easily by turning the handle counterclockwise.



Converting to hydraulic drive Fig. G

(B) When this vise is used as a normal machine vise.:

- By pushing the selector knob in the direction ⓑ as shown in (Fig. G) the hydraulic mechanism cannot operate.
- Select a position for the lock pin. Turn the handle to fasten the work.

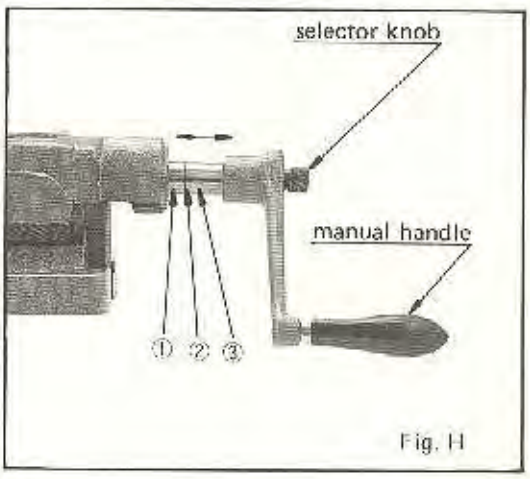
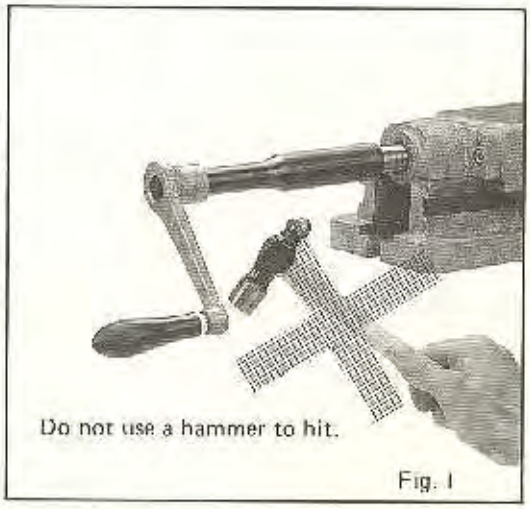


Fig. H

(C) Cautions for Use:

1. This vise is designed to give clamping force about twice as large as that obtained with the conventional machine vise, by cranking a small manual handle. Do not hit the handle or its vicinity with a hammer, etc., while fastening. (See Fig. I)

2. Check the level of oil in the cylinder occasionally. Insufficient level of oil results in decreased clamping power.


Do not use a hammer to hit.
Fig. I

7. HYDRAULIC OIL LEVEL AND OIL REFILL PROCEDURE.

A. * As a means of checking the oil level, see if there is a clearance of 0.3 to 1.0mm between the sliding stock (No. 5) and the flinching metal. (No. 52) When the level of oil is insufficient, this gap can be no longer detected. (Fig. J)

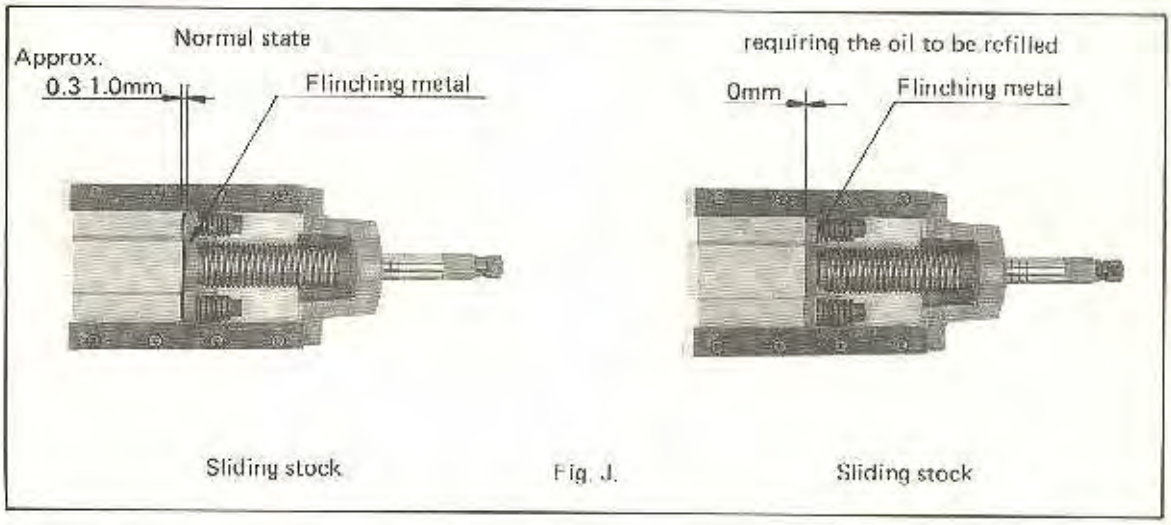


Fig. J.

B. Method of oil supplying

* Separate the sliding stock (No. 5) from the base (No. 1), and refill oil in while the sliding stock held in position as shown in (Fig. K)
First, remove the plug (No. 41) of the oil hole, pour oil in and tighten the plug. Now remove the plug again, and pour oil for the second time. By fastening the plug, thorough oil refilling is accomplished.

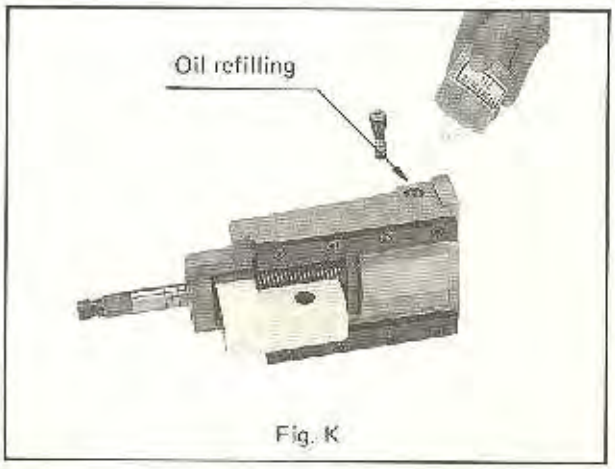
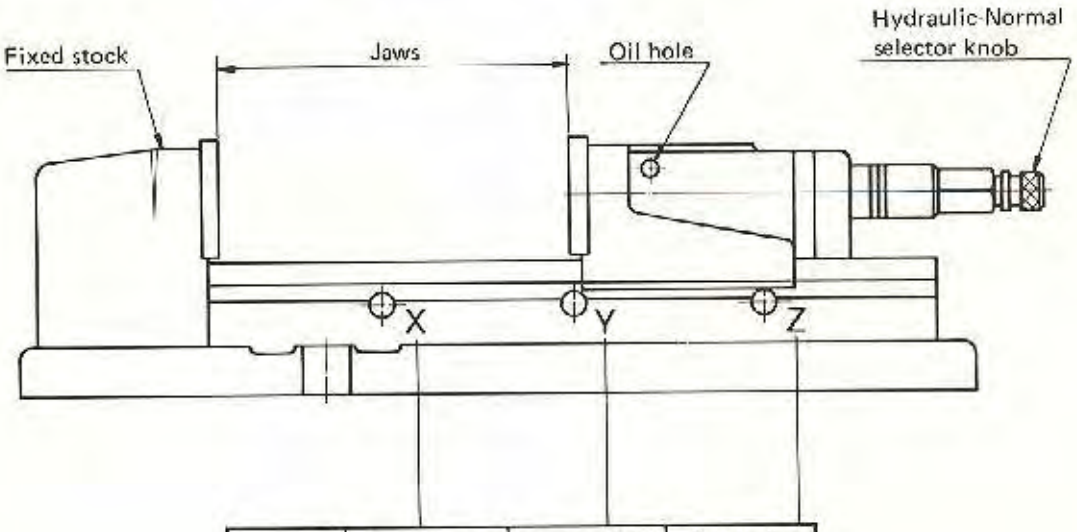


Fig. K

* Hydraulic fluid, (Caltex. HD-32), is used here, but any type of oil may be used, if it is equivalent to this.
* Oil refilling must be done as slowly as possible so as to allow no air bubbles enter the hydraulic fluid chamber.

8. 3 RANGES FOR JAW OPENING.

* Jaw opening distance of this unit is variable into 3 ranges, and its sliding stock may be glided to and fixed with the lock pin at a position selected according to the size of the work to be mounted, as per the table here. Time required in preparation and proper fixing of the work is thus minimized.



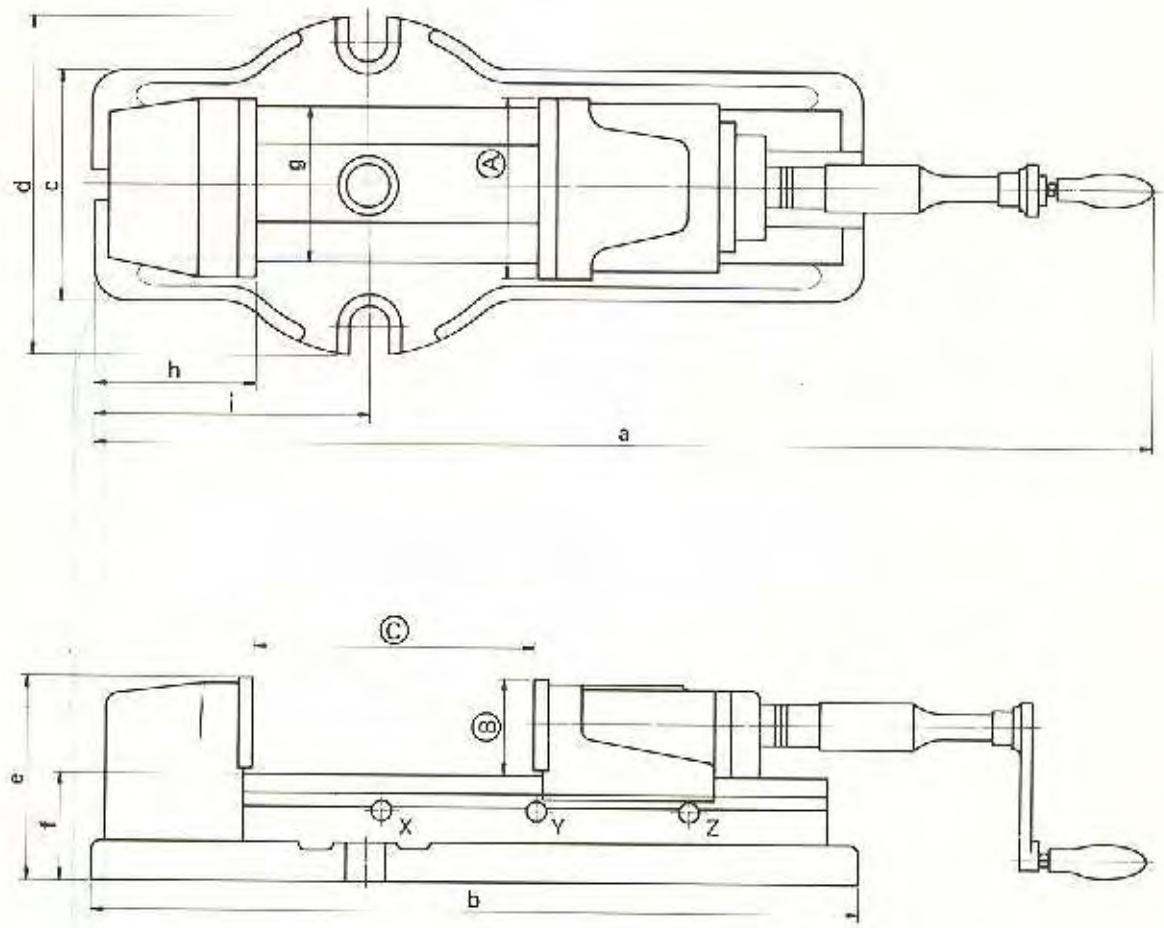
positions / models	Jaw open'g at position X	Jaw open'g at opsition Y	Jaw open'g at position Z
HP-40	0-60	57-115	110-170
HP-50	0-72	70-140	135-220
HP-60	0-100	98-200	195-300
HP-80	0-100	98-200	195-300

unit: mm

9. PREVENTATIVE MAINTENANCE.

1. Check oil level periodically minimum should be every 6 months if oil level is low refill immediately.
2. Vise slide ways should be cleaned frequintly. Keep slides ways free of nicks, dents, corrosive and abrasive materials to maintain the life accuracy.
3. After prolonged use clean solid and movable vise jaw faces and slide ways with a light oil stone to remove high spots.

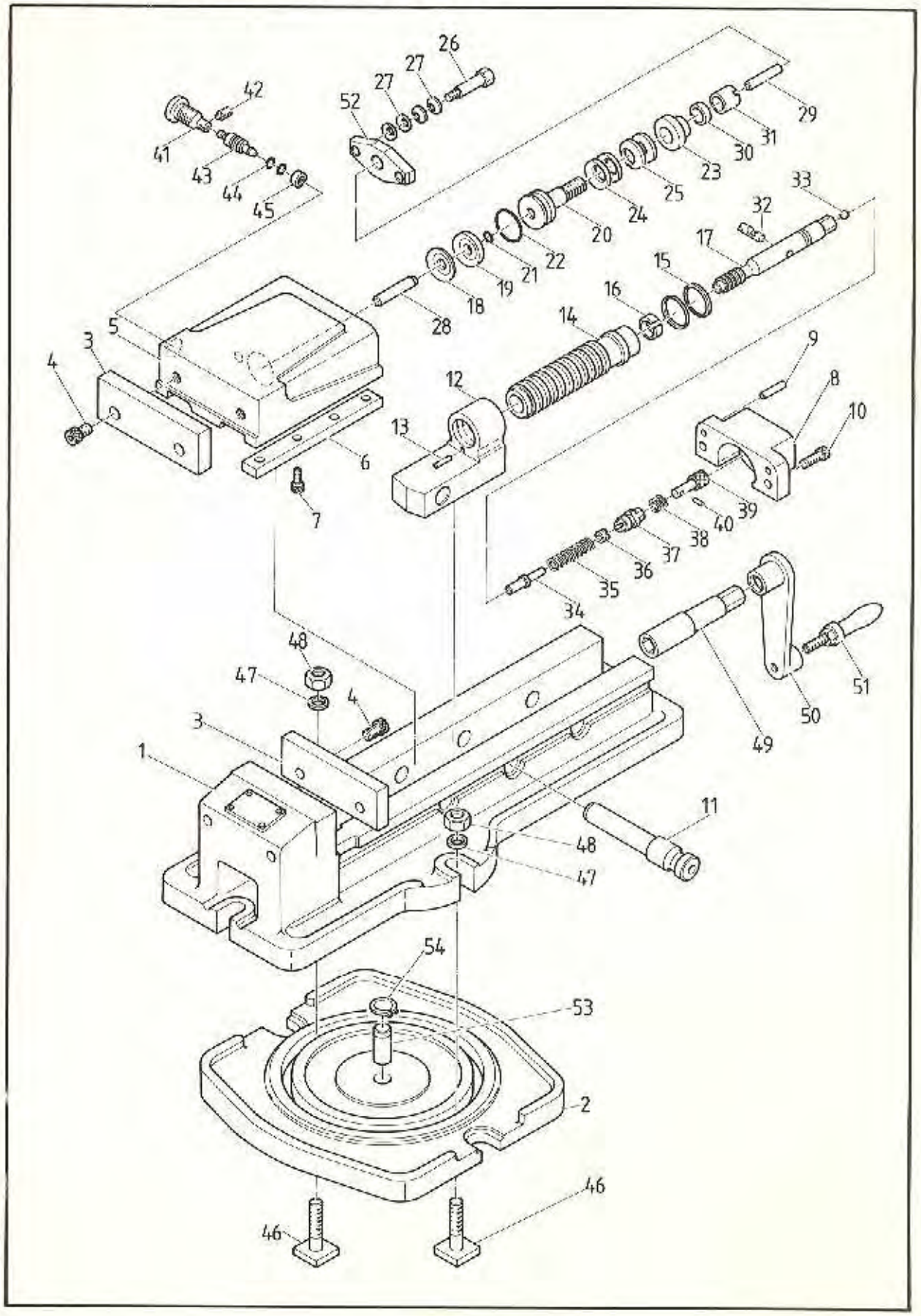
10. DIMENSIONS.



Model	Ⓐ	Ⓑ	Ⓒ	a	b	c	d	e	f	g	h	i	Clamp'g force (kg)	Weight (kg)	
														plain	Swivel base
HP-40	100	36	170	525	430	130	160	94	60	78	100	155	2500	16	6
HP-50	125	46	220	670	540	165	185	118	72	97	117	185	3500	32	10
HP-60	150	54	300	800	620	200	240	133	82	116	125	247	4400	54	16
HP-60-2S	480	54	300	800	620	330	550	138	88	116	125	247	4400	136	
HP-60-3S	600	54	300	800	620	220	660	138	88	116	125	247	4400	185	
HP-80	200	62	300	900	700	240	280	162	100	160	165	266	8000		

unit: mm

11. ASSEMBLY DRAWING.



12. PARTS NUMBER.

NO	Part no	Description	NO	Part no	Description
01	HP601	Base	28	HP615	Piston
02	HP602	Swivel base	29	HP616	Push rod
03	HP603	Jaws	30	HP617	Distance ring
04	OB0130	Jaws bolt	31	HP618	Round nut
05	HP604	Sliding stock	32	HP619	Stop for master screw rod
06	HP605	Top gib	33	OB1460	Steel ball
07	OB0120	Bolt	34	HP620	Spring guide pin
08	HP606	Master screw rod support	35	OB1525	Spring
09	OB1310	Taper pin	36	HP621	Adjusting screw for spring
10	OB0122	Bolt	37	HP622	End bolt for minor screw rod
11	HP607	Lock pin	38	OB1520	Change over coil spring
12	HP608	Fixed tube nut	39	HP623	Hydraulic-normal selector knob
13	OB1356	Spring pin	40	HP624	Pin
14	HP609	Master screw rod	41	HP625	Oil plug
15	OB1645	Dish spring for master screw rod	42	OB0600	Bolt
16	HP610	Stopper ring	43	HP626	Plug Rod
17	HP611	Minor screw rod	44	OB3105	"O" ring
18	OB3010	"V" oil packing	45	OB3055	"E" oil packing
19	OB3030	"VE" oil packing	46	OB0713	Swivel base locking bolt
20	HP612	Dish spring holder	47	OB1011	Washer
21	OB3110	Piston "O" ring	48	OB1115	Swivel base clamping nut
22	OB3125	Spring holder "O" ring	49	HP628	Handle joint
23	HP613	Spring press ring	50	HP629	Handle
24	OB1640	Dish spring	51	OB1705	Revolving grip
25	OB1642	Dish spring	52	HP631	Flinching metal
26	HP614	Bolt for auxiliary spring	53	HP632	Swivel pin
27	OB1610	Auxiliary dish spring	54	OB1250	Snap ring

Part number instruction